PROJECT NUMBER: 1708
PROJECT TITLE: Physical Chemistry and Process Monitoring
PROJECT LEADER: J. L. Banyasz
PERIOD COVERED: February, 1988

I. OPERATIONS SUPPORT (T. Van Auken, in collaboration with B. Semp)

A. **Objective**: Reduction of alcohol in aftercut formulations.

B. **Results**: Trial runs were conducted with a laboratory scale sonolater at the Sonic plant in Stratford, Connecticut. Stable AC mixtures were prepared with ethanol reductions of 30%, 30% with the alcohol replaced by water, and 100% alcohol removal. The solutions were slightly turbid but stable. Subjective evaluation of the mixtures is underway by Flavor Development.

C. **Plans**: A method will be developed to assess the consistency of AC solutions prepared via sonolator.

II. OPERATIONS SUPPORT (J. Crump, in collaboration with B. Semp)

A. **Objective**: Develop a rapid method of moisture measurement for the stemmeries.

B. **Results**: Good correlation has been obtained between standard OV measurements and a_w as determined by a Novasina Humidat for E45 bright and B34 burley tobaccos equilibrated to three moisture levels as well as several other grades of bright and burley measured on an as is basis. The results to date indicate that the relationship between a_w and OV is not significantly affected by tobacco grade or belt.

C. **Plans**: The range of the measurements will be extended in a more extensive study involving six grades of bright from each of four belts equilibrated to a_w's ranging from 0.4 to 0.8.

III. LOW DENSITY RODS (M. E. Counts, S. Ganeriwala)

A. **Objective**: To compare compression properties of individual low density and control rods and to measure bulk compression responses of control and test filler as a function of moisture and temperature.

B. **Results**: Measured bulk compression properties of filler used in low density and control rods as a function of moisture content. At the standard condition, the stiffness of control filler was different than that of filler with 6% added pectin. However, this difference decreased with an increase in moisture content.

Results of individual cigarette compression, peel tests, and simple stress-strain tests performed on pectin sprayed and control bright lamina were presented to low density rod personnel. A

2022162311

Source: https://www.industrydocuments.ucsf.edu/docs/lyxm0000

Physical Acoustics acoustic emission system was purchased to obtain the bonding information of low density rods.

C. **Plans**: Acoustic emission apparatus will be incorporated into future tests. Further tests will be conducted to verify the above results with pectin. The tests will be expanded to dextran bonded materials.

2022162312

Source: https://www.industrydocuments.ucsf.edu/docs/lyxm0000